

Winter energy  
shortage

COVID-19  
variants

Science Bowl  
Quiz

Electrical Safety  
Month

# • CLOSED • **Circuit**

WESTERN AREA POWER ADMINISTRATION

MAY 2021

**Enduring,  
adapting,  
succeeding**





# CLOSED Circuit

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# Winter energy shortage tests grid limits

By Eric Barendsen

**W**hen frigid temperatures cascaded south across the country in February, demand for electric power surged and generation faltered. Electric grids from Montana to Texas buckled under the strain. The Southwest Power Pool had to roll blackouts throughout its 14-state power grid to avert a disastrous, long-term outage.

While 21 WAPA customers experienced approximately one-hour outages over the course of two days, WAPA and the Army Corps of Engineers worked together to step up hydropower production and help stabilize the grid.

WAPA also flexed its financial reserve strategy and purchased power on the spot market to make its contractually guaranteed deliveries. These critical measures and other takeaways will inform WAPA's response to future grid challenges.

## **The cold reality**

Driven by a polar vortex, severe winter weather arrived mid-Febru-

ary, delivering record-setting low temperatures in the Midwest and a snow and ice storm all the way down to the Gulf Coast. Arctic air plunged into Texas, which reported some of its coldest temperatures on record, including two degrees below zero in Dallas.

Residents and businesses across the region dialed up their thermostats, causing a spike in electricity demand. At the same time, the bitter cold sidelined a number of powerplants—including both traditional and renewable resources—which reduced available electricity.

*continued on Page 2*



## Shock to the system

Upper Great Plains is part of a group of transmission operators managed by the Southwest Power Pool. One of 13 reliability coordinators in the Eastern Interconnection, SPP's grid covers a 14-state footprint from Montana to Minnesota in the north, reaching into Arkansas, New Mexico, Oklahoma and the Texas Panhandle in the south.

SPP is WAPA's reliability coordinator and market operator in UGP; much like an air traffic controller, SPP coordinates WAPA's transmission system in Iowa, Minnesota, Montana, Nebraska, North Dakota and South Dakota.

Beginning at midnight Feb. 9, SPP asked the transmission operators within its power grid to begin implementing "conservative operations," a status used when SPP is operating its system conservatively based on weather or other threats.

The severe conditions hit the grid with full force beginning the weekend of Feb. 13-14. That Sunday afternoon, SPP informed WAPA that it would likely need to declare an Energy Emergency Alert Level 1 starting at 5 a.m. on Monday.

"When we heard about that, we started pulling out our emergency operation plans, and the Merchant group started talking with the Army Corps of Engineers to see what we could do to help in that situation," said UGP Vice President of Operations **Lloyd Linke**.

## Stressed to the limit

At all times, energy supply must match customer demand on the transmission system to avoid catastrophic failure.

On Feb. 15, SPP's grid reached a peak load of 43,661 megawatts. After expending its reserves and importing power from other regions, SPP faced a supply shortfall of 641 MW. At 10:08 a.m., it was forced to issue the first Energy Emergency Alert Level 3 in the organization's 80-year history.

"Shortly thereafter, SPP directed its member utilities to institute rolling blackouts across much of its territory to protect the grid, and the communities that rely on it, from damaging and prolonged outages," Linke said.

Under an EEA 3 order, member utilities decide how best to cut back their use based on their individual contingency plans. Due to the fast-evolving emergency operations, most utilities were initially unable to notify their customers in advance.

On Tuesday, Feb. 16, WAPA was again directed by SPP to periodically shut off power on a rolling basis to maintain the integrity of the grid. As a wholesale hydropower provider,



Cold temperatures, ice and snow can wreak havoc on energy systems. This happened in Texas and the Midwest in February and, as pictured, at Summit Substation near Watertown, South Dakota, in 2016.

WAPA worked with its utility customers to implement and communicate controlled interruptions, while warning them to prepare for curtailments persisting through Thursday.

Twenty-one WAPA utility customers throughout UGP experienced outages for an average of 55 minutes, some of them multiple times for different loads. For some larger electric cooperatives, WAPA cut power at various delivery points at different times but never curtailed the same load twice.

In total, SPP temporarily interrupted electric service on two different days to reduce regional energy consumption. The first curtailment was by about 1.5% systemwide for 50 minutes Feb. 15 and again by about 6.5% for just over three hours Feb. 16. SPP cited inadequate supplies of natural gas, wind-forecast uncertainty and the

persistent, widespread and extreme cold as the driving forces behind the shortage.

## Mitigating actions

"Last week marked the first time SPP has ever had to direct controlled interruptions of service to our entire region," said SPP President and CEO Barbara Sugg in a statement. "We did so only after exhausting every other option, including bringing emergency generation online, importing power from neighboring regions and more."

SPP required utilities to appeal directly to consumers, urging them to reduce electricity and natural-gas use, both at work and home, and follow their local utilities' guidance on conservation measures. This helped reduce overall system load and minimized the duration of the shortage.

Fort Pierre, South Dakota, fired up its diesel-powered backup generators, which supplied the town with about 6 MW for 82 hours during the emergency.

"WAPA would like to thank our impacted customers and the families, farms and businesses

they serve in Upper Great Plains for their tremendous efforts to maintain the integrity of the grid," said Acting Senior Vice President and Upper Great Plains Regional Manager **David Neumayer**.

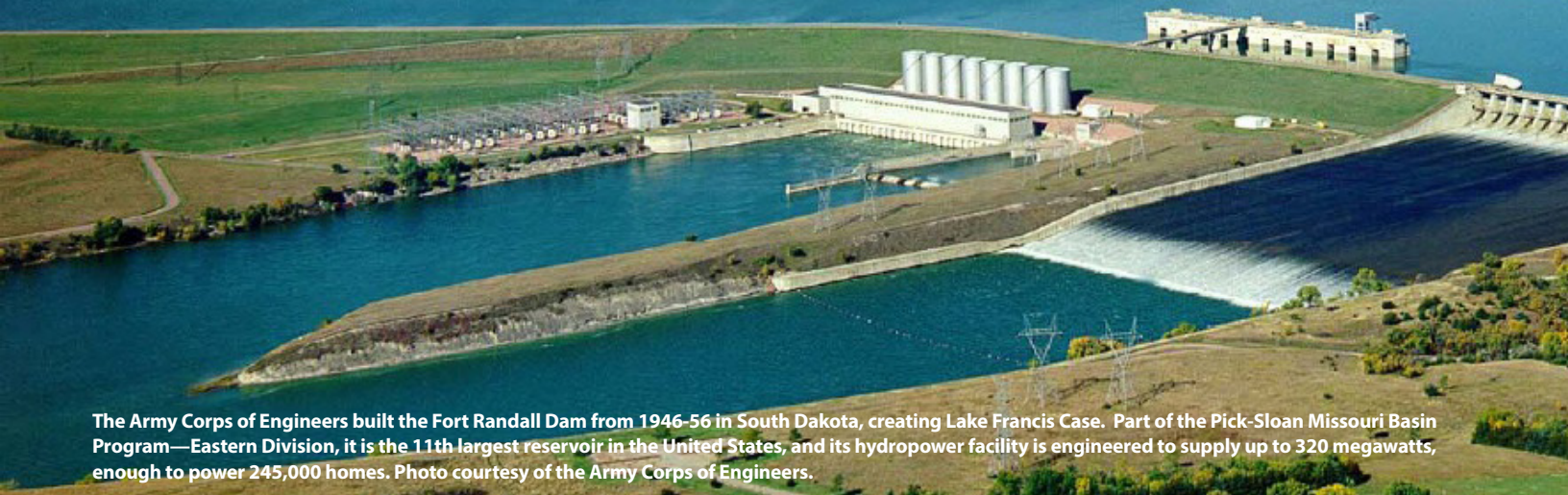
By Saturday, Feb. 20, the energy shortage was over.

## Pooling resources

WAPA worked with the Army Corps of Engineers Feb. 15-18 to provide significant generation increases from the Missouri River powerplants to support the grid. UGP and the Corps worked together to maximize hydropower output and closely monitor the system.

"UGP's Power Marketing team worked with the Army Corps of Engineers to determine if they would allow for additional water flows





The Army Corps of Engineers built the Fort Randall Dam from 1946-56 in South Dakota, creating Lake Francis Case. Part of the Pick-Sloan Missouri Basin Program—Eastern Division, it is the 11th largest reservoir in the United States, and its hydropower facility is engineered to supply up to 320 megawatts, enough to power 245,000 homes. Photo courtesy of the Army Corps of Engineers.

beginning on Monday,” said UGP Vice President of Power Marketing **Lori Frisk**. “We aligned to minimize impacts during this event and optimized all available resources to support SPP and our customers.”

In coordination with WAPA, the Corps boosted hydro production at morning and evening peak hours with up to 740 MW per hour in additional generation.

“Normally, the Army Corps of Engineers looks at factors like navigation, flooding, recreation and environmental restrictions to give us a water schedule of how much water they will allow to go through the powerplants each day,” Frisk said. “But, during the emergency, the agencies worked together to support the grid whenever and wherever it was needed most.”

WAPA and the Corps sent 22,500 megawatt-hours of additional hydropower to SPP between Feb. 15 and 18, enough to power between 700,000-800,000 homes.

What made this possible was the unprecedented level of coordination and cooperation between the Corps, WAPA’s Merchant and Operations groups and SPP.

“People made this response happen, not tools nor algorithms,” said Supervisory Energy Management and Marketing Specialist **Neil Lindgren**. “All branches truly made the most of their human resources throughout this entire event. The professionalism in thought, inclusion and communication was nothing short of impressive.”

## Closing the gap

WAPA also purchased power off the spot market to make up the difference between available hydropower and the firm, or guaranteed, power contractually required by customers in the region.

“Pick-Sloan is marketed with firm obligations; to the degree we’re short, we have to buy—and we’re then exposed to market prices,” Neumayer said, referring to the hydropower UGP sells from the Pick-Sloan Missouri Basin Program—Eastern Division.

WAPA maintains financial reserves to fill the gap when available energy falls below what is promised to customers, including \$393 million set aside for purchase power and wheeling costs. Because of the complexities of the process for settling power purchases during a period of intense price volatility, it could take months to know the total cost of energy purchased during the emergency.

“Looking back, it is a really good thing WAPA did the work to ensure we have our purchase power and wheeling reserve strategy in place,” Neumayer said. “The authority to have the funding available really proves its value in times of unexpected price impact.”

The financial reserves provide stability and confidence that WAPA can weather difficulties like the one

in February and continue to reliably supply its customers.

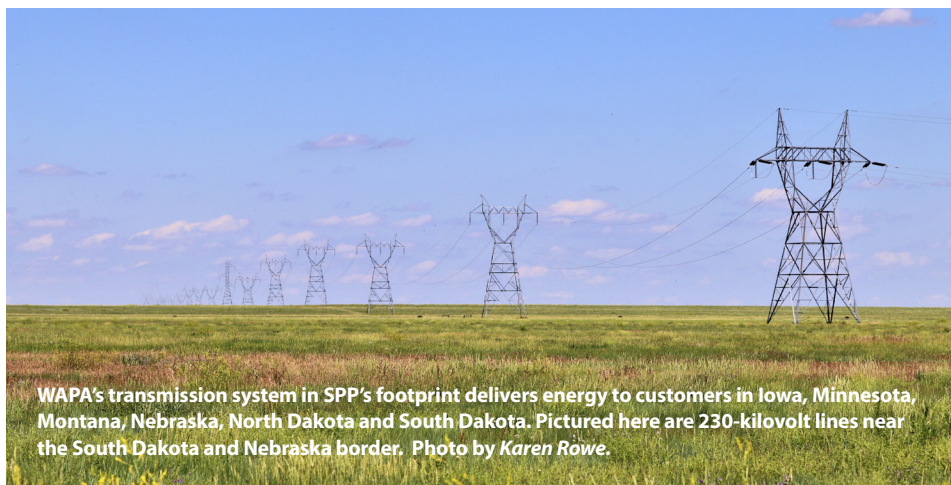
## Challenges ahead

As the grid is pushed closer to the operational edge—with smaller margins for error—extreme weather events will continue to test the flexibility and resilience of utilities and their customers.

Key takeaways that WAPA gleaned include beefing up communication with customers and working with the Corps as quickly as possible. WAPA will also collect more data on what is at the other end of the lines that the organization is de-energizing. Advancements in these areas will go a long way toward rounding out WAPA’s response in the future.

“Any time that it’s the first time you implemented your plans, there’s always going to be room for improvement,” Linke said. □

*Note: Barensen is a public affairs specialist.*



WAPA’s transmission system in SPP’s footprint delivers energy to customers in Iowa, Minnesota, Montana, Nebraska, North Dakota and South Dakota. Pictured here are 230-kilovolt lines near the South Dakota and Nebraska border. Photo by Karen Rowe.



# SN, Trinity partner for wildfire prevention

**T**he wildfire season in 2020 was particularly devastating, with West Coast states finding the destructive events difficult to control. More than 10.2 million acres were burned in California, Oregon and Washington. The fires took lives, destroyed buildings and resulted in around \$20 billion in damage.





The risk wildfire presents to the grid is never far from WAPA's mind, and Sierra Nevada staff is partnering with Trinity Public Utilities District to improve rights of way. This initiative is intended to mitigate the threat to transmission lines from wildfires, and it began in early 2020, well before the record-setting season got underway.

The scope of the project is large and there is still a long way to go.

"We have a large stakeholder group of agencies we are teaming with on this project," said Natural Resource Specialist **Beth Kelly**.

For instance, the Bureau of Land Management, the Bureau of Reclamation and U.S. Fish and Wildlife Service are all cooperating agencies.

Other stakeholders involved include – but are not limited to – the Army Corps of Engineers, the California State Lands Commission, the California Department of Water Resources, the California Department of Fish and Wildlife, the California Department of Forestry and Fire Protection, the California Department of Toxic Substances Control and the California Department of Transportation.

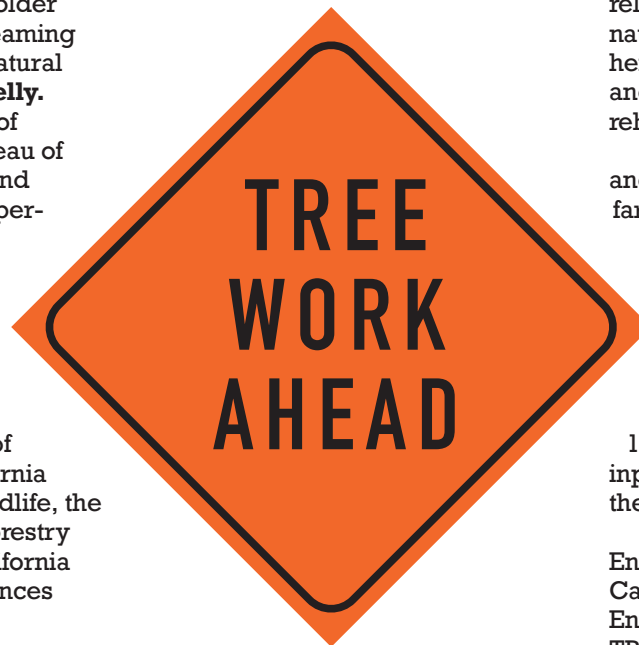
The intention is to expand the Trinity-to-Weaverville right of way to protect the transmission and distribution line system through proactive vegetation management. This would also enhance the reliability of power distribution, improve WAPA transmission line access and protect the health and safety of nearby communities and biological and natural resources.

State of California Senate Bill 901 requires publicly owned electric utilities to prepare wildfire mitigation measures if the utilities' overhead electrical lines and equipment are located in an area that has a significant wildfire risk.

The areas surrounding TPUD and WAPA's systems are vulnerable to fire risk due to the dense vegetation

and steep terrain, and CalFire has classified this area as being a "very high fire hazard." This risk was made manifest in the recent Carr Fire.

The proposed project would reduce fuel loads within the rights of way of these utility systems, create a potential firebreak and minimize the risk of wildfires caused by powerlines.



Recent wildfires have indicated that the current minimum buffer clearances are not sufficient to prevent destructive wildfires. The right-of-way expansion and vegetation management project is designed to address this proactively.

The project consists of a number of improvements. It expands the WAPA Trinity-to-Weaverville 60-kilovolt transmission line right of way from 80 feet to up to 130 feet, the Lewiston 60-kV Tap right of way from 80 feet to up to 130 feet and TPUD's distribution line rights of way from 20 feet to up to 130 feet.

It will also improve access roads by realigning them through gentler

terrain and reducing the number of tight switchbacks, provide access road maintenance for the TPUD transmission and distribution system and formalize a comprehensive operation and maintenance program for TPUD and WAPA.

The clearance distance would vary based on topography, potential land-use conflicts and other factors.

Vegetation would be removed as necessary for risk reduction and reliability purposes, using a combination of mechanical, manual and herbicidal control methods. WAPA and TPUD would improve and rehabilitate access roads as needed.

"We have completed biological and cultural resources surveys so far," said Kelly. "We just completed two public scoping meetings with the public, held virtually.

Now production of the Draft Environmental Impact Statement / Environmental Impact Report will begin."

The meetings were held Jan. 12 and 14 to obtain and record input, comments and alternatives to the proposed action.

As part of the National Environmental Policy Act and California Environmental Quality Act Environmental Review, WAPA and TPUD will assess potential impacts of the project, identify ways to avoid or reduce impacts, disclose potential impacts to the public and provide environmental information to decision makers.

"We have received a lot of public comments on our right-of-way clearing methods, both WAPA and TPUD, such as the type of cutting and use of herbicide," said Kelly. "As always, we are taking every comment into consideration and making sure we are proceeding in the best possible direction."

The draft Environmental Impact Statement / Environmental Impact Report is scheduled to be completed in late August, with the final version scheduled for April 2022. □



**Science Bowls  
continue  
through  
pandemic**

Hand-drawn scientific content on the chalkboard includes:

- Mathematics:**
  - $\sin^2 x + \cos^2 x = 1$
  - $\lim_{x \rightarrow a} x = a$
  - $p = \frac{1}{2}(a+b)$
  - $\frac{h}{n^2}$
  - $x=1$
  - $p = \sum_{x=0}^{\infty} x_i$
  - $E=mc^2$
  - $\tan x = \frac{\sin x}{\cos x}$
  - $p = \frac{a \cdot h}{2} = \frac{a^2 \sqrt{3}}{4}$
  - $\frac{h}{n}$
- Chemistry:**
  - Chemical structures: CH2-CH2, CH3CH2CH2CH3, H2O, H4H2O3, C6H6 (benzene ring), and a complex organic molecule.
  - Reaction: CH2-CH2 + H2 >>[Ni, 200^\circ C]>> CH3CH2CH2CH3
  - Formula:  $d = a\sqrt{2}$
  - Formula:  $\cos 30^\circ = \frac{h}{a} = \frac{\frac{a\sqrt{3}}{2}}{a} = \frac{\sqrt{3}}{2}$
  - Formula:  $d = \sqrt{a^2 + b^2}$
  - Formula:  $p = \frac{a \cdot h}{2}$
  - Formula:  $\sin^2 x + \cos^2 x = 1$
- Physics:**
  - Diagram of a right triangle with sides  $a$ ,  $b$ , and  $c$ .
  - Diagram of a pyramid with base  $b$  and height  $h$ .
  - Diagram of a wave with amplitude  $h$  and wavelength  $\lambda$ .
  - Diagram of a cube.
  - Diagram of a DNA double helix.
  - Diagram of a crystal lattice.
  - Diagram of a hand holding a piece of chalk.

Most obviously, the ongoing COVID-19 pandemic prevented students from being able to safely gather for the competition. This resulted in a unique format.

Also due to the pandemic, a number of schools saw reduced participation, with several regional Science Bowl events being cancelled. Interested students in those areas were instead invited to participate in one-off virtual events for a chance to advance to the National Science Bowl.





Brookings High School, winner of the South Dakota Regional High School Science Bowl, was just one of many teams to participate in this year's virtual events.

For this reason, WAPA did not host a Colorado Regional Middle School Science Bowl in 2021.

Victorious teams from the five remaining WAPA-hosted regional Science Bowl events moved on to the virtual preliminary rounds for national finalists in April. The top 32 middle school teams and top 32 high school teams from that event will compete this month, virtually, in the National Science Bowl.

The Department of Energy created the National Science Bowl in 1991 to encourage students to excel in mathematics and science and to pursue careers in these fields.

Each year, more than 9,000 high school students and 5,000 middle school students compete in around 65 high school and 50 middle school regional Science Bowl tournaments. Around 315,000 students have participated in the National Science Bowl throughout its 30-year history, and it is one of the nation's largest science competitions.

*Closed Circuit* extends its congratulations to the winning teams and its appreciation to all of the participants and volunteers who allowed this academic tradition to continue through unprecedented times. □

## The winners of the WAPA-hosted events are:

**North Dakota Regional High School Science Bowl:**

Century High School

**South Dakota Regional High School Science Bowl:**

Brookings High School

**Sacramento Regional High School Science Bowl:**

Mira Loma High School

**Big Sky Regional Middle School Science Bowl:**

Belgrade Middle School

**Big Sky Regional High School Science Bowl:**

Capital High School





## How would you fare in the National Science Bowl?

Test your knowledge with the following official sample questions from the National Science Bowl. How many can you get right? Check your answers on the back cover.

### Middle school questions

1) A squirrel runs 11 meters north, 7 meters west, and then 4 meters north. To the nearest whole meter, how far is the squirrel from its original starting point?

---

2) What astronomical term comes from the Greek meaning “yoked together” and is used to describe the alignment of three celestial bodies?

---

3) The alloy brass is composed of copper and what other metal?

---

4) Sam completely fills a box with sand. The box is a right rectangular prism measuring 2 feet by 16 feet by 2 feet. His friend Max has a box in the shape of a cube. Max takes the sand from Sam's box and dumps it into his cube, exactly filling it. How many feet tall is Max's box?

---

5) What is 60% of 30 plus 60% of 40?

---

6) Protons and neutrons are made up of still smaller particles, called what?

---

7) A 60-foot rope is stretched across 60 feet. How many cuts would be required to cut it into 5-foot sections?

---

8) What type of mimicry is demonstrated by the nonvenomous snake eel, which looks like the highly venomous banded sea snake?

---

9) In an atom, what is the maximum number of electrons the first energy level can hold?

---

10) What is the distance, in astronomical units to the nearest whole number, from the Earth to the Sun?

---

11) In the alternating arithmetic sequence with first the terms -7, 9, -11, what is the sum of the first 11 terms in the sequence?

---

12) A horse on the outer edge of a circular carousel is 40 feet from the center of rotation. A horse on the inner edge is 15 feet from the center. During a ride of 8.5 rotations, to the nearest hundred feet, how much further in linear distance will the outer horse travel than the inner horse?

---

13) Fermentation occurring in humans produces what molecule?

---

14) What reaction, in which the starting material is decomposed in the presence of high temperatures without oxygen, is used to make biochar?

---

15) A vessel is pressurized to 500 Pascals and is applying force over an area of 20 meters squared. What is the force, in newtons, applied by this vessel?

---

### High school questions

1) Given a graph with velocity as the y axis and time as the x axis, what physical quantity does the slope of the graph represent?

---

2) Human vision occurs due to the photoisomerization of what molecule?

---

3) Lead-acid batteries are commonly found in cars. In these batteries, what substance serves as the electrolyte?

---

4) Glucagon is primarily manufactured in the alpha cells of what human organ?

---

5) How many ligands does a molecule with octahedral geometry possess?

---

6) What quantum number is responsible for the energy of the orbital and corresponds to the shell of the electrons?

---

7) Flocculent and grand design are words used to describe what specific type of galaxy?

---

8) A 2-kilogram ball is thrown directly down from the top of a tall building. If a 6-kilogram ball is thrown directly upwards at the same speed from the top of the same building, what is the ratio of the total energy of the 6-kilogram ball to that of the 2-kilogram ball?

---

9) The nucleus of what element is produced in a deuterium-tritium fusion reaction?

---

10) What non-foliated metamorphic rock forms from metamorphism of limestone?

---

11) The approximate surface temperature of our Sun is 5,800 kelvins, while the approximate surface temperature of the blue giant star Rigel is 11,600 kelvins. According to these data and the Stefan-Boltzmann law, how many times as much radiative power per unit of surface area does Rigel generate as the Sun?

---

12) A car is uniformly accelerating in a straight line, traveling 120 meters in 12 seconds. If its velocity as it reaches the end of the 120 meters is 13 meters per second, then, in meters per second, what was its initial velocity?

---

13) A 15-kilogram fish is swimming at 2 meters per second and eats a smaller, 5-kilogram fish that is stationary. What is the final velocity, in meters per second, of the two-fish system?

---

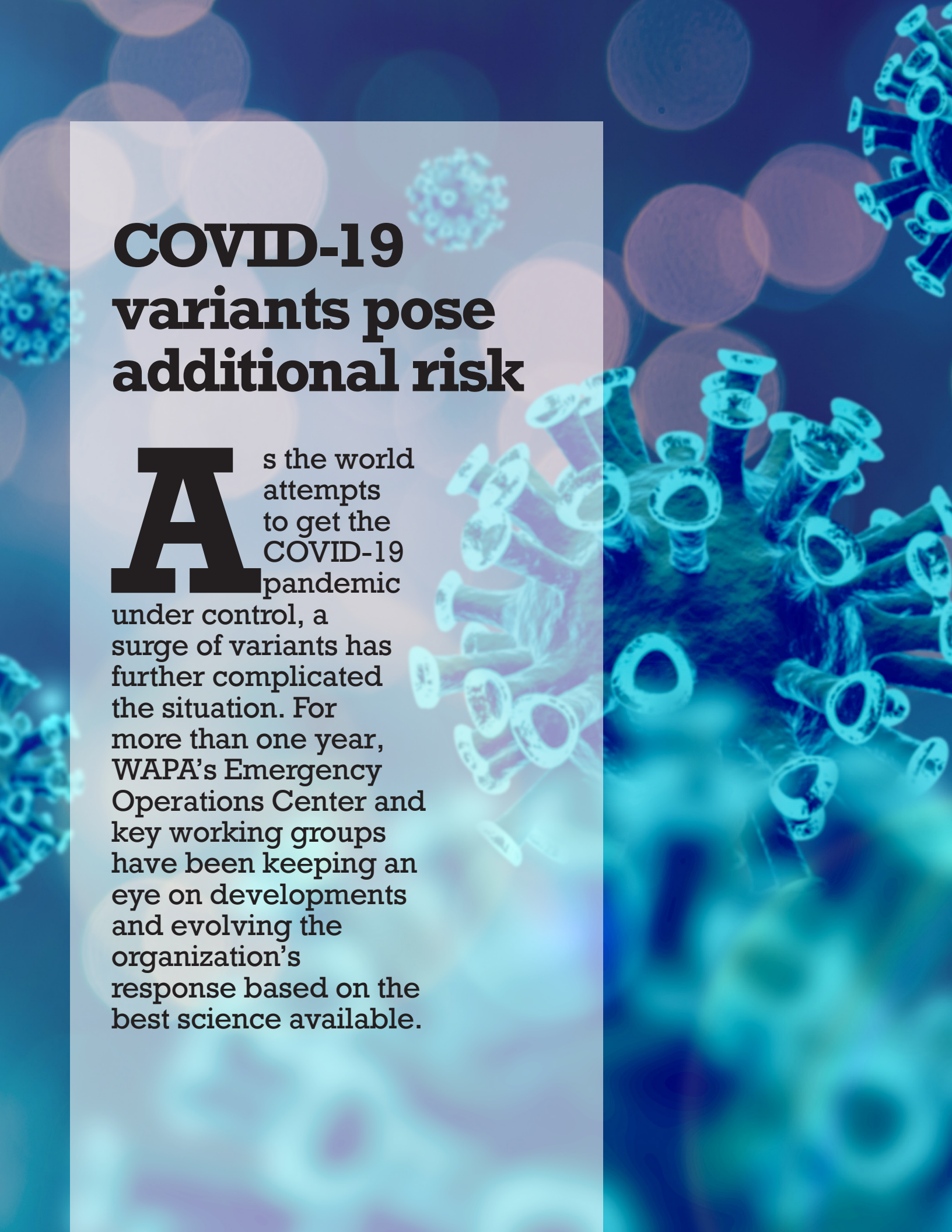
14) An artist creates the background for a painting by placing a circle in a square frame so that their centers coincide. If the radius of the circle is 7 inches, and the minimum distance from the circle to the square is 5 inches, what is the perimeter, in inches, of the inside of the frame?

---

15) A pair of ten-sided dice, each with the numbers one through 10 printed on the faces, is rolled. What is the most probable sum of the two numbers rolled?

---





# **COVID-19 variants pose additional risk**

**A**s the world attempts to get the COVID-19 pandemic under control, a surge of variants has further complicated the situation. For more than one year, WAPA's Emergency Operations Center and key working groups have been keeping an eye on developments and evolving the organization's response based on the best science available.



“

**Following the science is important, because while we haven't seen this specific virus before, we do have a large knowledge base from handling other outbreaks.**

”

One of the employees working closely on WAPA's pandemic response is Emergency Management Specialist **Tarra Keathley**. *Closed Circuit* sat down with her to discuss her role, unforeseen challenges, what to expect from COVID-19 variants and more.

### **Can you tell us a bit about your background?**

My background is in laboratory science and emergency management. Those two qualifications are uniquely suited for pandemic response. I have the knowledge of virology and polymerase chain reaction testing from my undergraduate degree and as a laboratory scientist at the Department of Veterans Affairs.

I have knowledge and experience putting emergency actions into place concerning infectious diseases through my previous role with the Emergency Medical Response Team at the VA. During my time there, I designed and led exercises involving infection control for high-consequence infectious disease. I also obtained my Master Continuity Practitioner certificate, which required special courses in continuity including specific actions during a pandemic.

Additionally, I am educated in health administration, have experience with coordinating and testing closed

points of distribution and have worked closely with healthcare statistics and public health entities to identify, prepare for and surveil other illnesses in the past, including influenza and Ebola.

### **How long have you been involved in WAPA's pandemic response?**

I have been involved in WAPA's response from the beginning. I began identifying COVID-19 as a potential threat in January 2020.

Working with the Office of Security and Emergency Management and Safety, we published the first awareness bulletin on Jan. 22, 2020. At this time, OSEM stood up a monitoring

Emergency Operations Center, staffed by me to monitor and report the threats of COVID-19 to the director of OSEM.

In early March 2020, we transitioned to a whole EOC team, where I took the position of planning section chief, or PSC. At the beginning of April, we transitioned the original EOC to a multiregional coordination, or MRC, team and stood up regional EOCs.

I remained on the MRC and I continue to serve as the PSC.

### **What has been the biggest challenge in managing COVID-19 at WAPA?**

The biggest challenge from my point of view is to take a medical situation and work necessary precautions into everyday life within WAPA.

However, we are an incredibly resilient organization. With the help of amazing teams within our MRC and EOCs, we have identified the science, written plans and implemented precautions to ensure maximum protection for our employees.

### **What do WAPA employees need to know about the COVID-19 variants that are becoming more common?**

Variants will continue to emerge and evolve through the pandemic. The most important thing is to be aware that emerging variants have





been shown to be more virulent, more transmissible and even more deadly in some cases.

Vaccines are highly recommended because they have been proven to decrease the incidence of severe illness and death.

While we don't yet know the full impact of emerging variants on vaccines, we do know that there is a possibility for individuals to continue to be infected and be infectious even after vaccination. Therefore, it is even more important to continue to take all possible precautions.

### **What are we able to learn from previous outbreaks in terms of handling COVID-19?**

We are all learning as the virus mutates. We have been able to share information more quickly than ever before, which is helping the world's fight against COVID-19.

Following the science is important, because while we haven't seen this specific virus before, we do have a large knowledge base from handling other outbreaks.

### **Aside from the common advice – wearing a mask, washing your hands, social distancing – is there anything people can do to reduce their risk of getting COVID-19?**

Vaccinate as soon as possible. Vaccines are proven to reduce the potential for severe illness and death.

Also, be aware of your bubble. Know that your potential for exposure expands exponentially with every person who enters your bubble.

### **Do you have any personal advice when it comes to staying mentally and emotionally healthy at home?**

Don't isolate yourself. Reach out to others, even just to do a 15-minute check in. Join the groups that are meeting virtually, such as the Line by Line Non-Book Club Book Club or join Leadership Development webinars. It is helpful knowing that you're not alone.

As far as hobbies and habits go, I check my schedule every day for time to step away for a long lunch, or a break during which I take time to cook or take a walk. Being able to break up the day really helps. I've also been scheduling time in the evenings to take time for myself. I will practice language, paint or read my schoolwork. Taking a break from work to reset is necessary for mental health.

Knowing that this will end eventually, even if the timeline is still a gray area, helps me. Planning for the vacation I will take when this over is also a way to look forward and remind myself that this won't last forever, even if it feels that way at times.

### **What would you say to anybody who still does not feel that the pandemic is a serious danger?**

Please protect others, even if you feel that you are not in serious danger. The evidence points to increasing virulence, transmissibility and even death as new variants spread.

If you have not experienced a loss during this pandemic, be thankful and know that many of us have.

### **Is there anything else you would like to say to readers?**

First, a huge thank you to all of the teams working with the MRC and the EOCs. They have worked tirelessly to ensure a safe work environment for mission-critical workers – who are still reporting to job sites – and to monitor conditions to ensure an eventual safe return for the rest of WAPA.

I know it may seem that we repeat things frequently, however we repeat because it is still as important, and maybe even more so, to be cautious.

All of the precautions such as mask wearing and social distancing are proven to decrease transmission. This will be even more important as variants that more easily transmit spread throughout our regions. Remember to stay safe! □







In Desert Southwest, Procurement and craft employees worked together to successfully procure a helpful piece of heavy equipment during the pandemic. Photo courtesy of Jeannine Veitz.

# Procurement, craft team up to acquire vehicle

**I**n March 2019, the Procurement team in Desert Southwest received a purchase request from craft employees for a self-loader 8x6 semi-tractor. The vehicle could streamline the previous process for loading poles onto trailers by reducing detailed equipment and manpower.



Traditionally, six craft employees, three work trucks, one line truck, one semi-tractor and one trailer are used to load and unload poles. Using the self-loader would require only two craft employees, one work truck and one trailer.

"That represents significant savings in manhours and equipment, minimizes cost distributions and reduces the number of employees exposed to potential safety hazards," said Contract Specialist **Jeannine Veitz**.

### Responsible purchasing

Upper Great Plains had assisted DSW craft employees on wood-pole replacement projects in several ways, including providing a self-loader, so DSW knew exactly how much of a benefit the vehicle would be.

The DSW Procurement team conducted initial market research and engaged in discussions with the General Services Administration, concluding that this specialized equipment was not available through the standard supplier.

"The options available through our standard supplier would not be sufficient for use in difficult terrain," continued Veitz. "They would also not meet Arizona, California and Nevada road and bridge-crossing regulations without complex and costly multi-award procurement efforts."

The multi-award option would require that WAPA assume liability to ensure that the equipment would operate at its full potential; meet road, bridge and safety regulations; address potential design flaws; absorb the costs of modifying new equipment; and avoid procuring costly equipment that would not be able to safely carry out the organization's mission.

In May 2019, after a Request for Interest to GSA Vendors, the Procurement team released a Request for Proposal. Two vendors expressed interest, but they both ended up needing to withdraw their proposal. Over the course of the next two months, a

third vendor also proved unable to meet DSW's needs.

### Finding the way forward

In July 2019, Veitz – along with Foreman III Lineman **Terry Kugler**, Regional Transmission Lines Maintenance Supervisor **Abel Betancourt** and Equipment Specialist John Lee from Bonneville Power Administration – formed a team to design and procure a vehicle that would be a perfect solution.

They requested a Department of Energy fleet waiver and authorization to procure the required equipment on the open market.

"If the waiver were not approved," explained Veitz, "it would have required us to procure an off-the-shelf semi-tractor through the standard supplier, separately procure the self-loader through GSA and solicit an engineer service contract to alter the semi-tractor to accommodate the loader, winch and hydraulic pump that would comply with road and bridge regulations and meet Environmental Protection Agency requirements."

This would have been costly, and it would have virtually voided all of the manufacturer warranties on the equipment.

Fortunately, the situation did not come to that. The waiver was approved in August 2019 and the vendor was selected the following month.

### Building the solution

An initial design planning meeting was held in October 2019 to address technical requirements, engineering designs and contractor requirements. For the next several months, designs were prepared and proposed to ensure that all needs and regulations could be met.

"In April 2020, we finally had an engineer-approved design for a self-loading pole truck, minimum four-axle 8x6 semi-tractor," said Veitz. "Hours of ideas and brainstorming were now starting to become a reality."

As soon as the chassis design entered production, however, COVID-19 caused a factory shutdown. This delayed production until July 2020, delaying the expected delivery date from Sept. 30 to Dec. 30, 2020.

Initially, the team was supposed to inspect the equipment ahead of delivery at the vendor facility in Florida. Due to pandemic-related travel restrictions, however, a virtual inspection was completed instead in early December.

"The contractor and their team did a great job meeting unique requirements and specifications, and they provided us with a virtual inspection during these challenging times," Veitz said.

Calls and discussions continued until a final configuration was approved.

"The loader, with a 25' reach, will assist WAPA in safely loading poles onto the trailer with minimal employees," Veitz explained of the final product. "It also has a special tire-inflation system, which allows the driver to adjust pressure in all rear tires for maximum traction in loose dirt or sand."

Additionally, a front winch with capstan allows for vehicle recovery if necessary, or for wire-pull assistance. An adjustable fifth wheel allows the vehicle to easily pull a variety of trailers.

Despite the challenges posed by the various requirements and the COVID-19 pandemic, in only 21 months the team successfully designed and acquired a unique self-loader that will benefit DSW craft employees.

"A big thank you to all involved in the support and for the success of this project," concluded Veitz. "A special thank you to John Lee with BPA for his time and effort in assisting us as the technical expert during the entire process. From planning to final inspection, we could not have done it without him!" □



# Career, interviewing courses available

By Brittanie Paquette



**W**hat are you missing if you are not attending the Leadership Development Program's course offerings? I'm glad you asked!

In April, the Leadership Development Program focused on providing resources for employees related to career pathing, interviewing skills and career advice. The program designed April's course offerings to be beneficial to all participants, regardless of which – or how many – courses they attended.

In the spirit of collaboration and communication – two components of WAPA's Leadership Competency Model – we are excited to share some of the highlights that came from April's course offerings, centered around career pathing, interviewing skills and career advice.

## Interviewing skills

**Troy Steadman** and I, as Leadership Development Program managers, held two open enrollment courses on interviewing skills. Nearly 80 employees attended, along with representatives from the Power Marketing Administration Human Resources Shared Service Center.

The goal of the course was to walk employees through how to prepare for interviews and to learn about CCAR, which stands for challenge, context, action and result. Attendees learned to use CCAR when preparing and providing answers to interview questions.

CCAR is useful not only for answering questions in an interview, but also when presenting an idea or summarizing a past experience to a group or at a public speaking event. Leadership

Development is hosting a bonus session in May for those who attended this course, providing them with an opportunity to practice using this tool.

## Leadership skills

During the monthly Leadership Essentials webinar, the eighth in this series, Leadership Development focused on the questions, "Where Am I Going and How Do I Get There?" These are two important considerations in any career.

The webinar also touched on topics such as a typical career ladder being not so typical; how to create a micro plan as well as a long-term plan; and the importance of mentoring and getting involved in your organization. We also presented a few things to consider when thinking about your next career move.

Leadership Essentials webinars are held the third Thursday of each month at 2 p.m. Mountain Time.



## Supervisory skills

During the 20:20:20 Supervisor Forum in April, Senior Vice President and Sierra Nevada Regional Manager **Sonja Anderson** spoke to attendees about the top things she has learned in her career with the federal government. A few of her observations were related to executive core qualifications.

Anderson also spoke about the importance of providing feedback to

employees, even when it's difficult. She emphasized that understanding the different business lines within WAPA and the federal government has been extremely valuable.

Additionally, Anderson discussed the mentors she found at different points in her career and how helpful those relationships have been.

The 20:20:20 Supervisor Forum is open to all current and acting supervisors. It is held on the second Wednesday of every month.



## More to come

In the coming months, the Leadership Development Program is planning to offer open-enrollment courses in conflict management as well as influencing and negotiating.

These courses were chosen based on the needs assessment results collected from WAPA employees, and they focus on more components of WAPA's Leadership Competency Model.

Keep an eye on your email for information regarding these courses and other offerings from the Leadership Development Program. We hope to see you there! □

*Note: Paquette is a Leadership Development Program manager. Troy Steadman contributed to this story.*

For resources and programs provided by Leadership Development, as well as recordings of all past webinars, visit **myWAPA, Programs, Leadership Development, Leadership Essentials Webinars**



Contact [leadershipdevelopment@wapa.gov](mailto:leadershipdevelopment@wapa.gov) for more information.







# Evaluate your home for Electrical Safety Month

By Paul Robbins

**I**n an age of electronic devices, increased electricity use at home can add strain to the electrical systems on which we rely daily, especially in older homes.

Did you know that an average of 51,000 electrical-related home structure fires occur every year in the U.S.? They cause more than \$1.3 billion in damage, claim hundreds of lives and injure thousands more.

Electrical Safety Foundation International also reports that hundreds of people suffer electrocution annually. May is Electrical Safety Month, and ESFI suggests a few products and practices to help make your home safer.

## **Have arc-fault circuit interrupters installed**

Home wiring can become damaged in many ways. Nails and screws punched through walls can damage it, or it can crack from old age. Extension cords become pinched under furniture or crimped in corners.

Whatever the reason for it, damaged, stressed and overheated wiring can cause arc faults that start fires. Arc-fault circuit interrupters replace standard circuit breakers that do not recognize arc faults. Combination arc-fault circuit interrupter breakers have specialized electronic components that identify arc faults in a home's electrical system and cuts power before a fire starts.

## **Use ground-fault circuit interrupters**

Water and electricity are a dangerous combination. A ground-fault circuit interrupter is a specialized outlet, designed to cut power and prevent shock or electrocution when a ground fault or leaking current is detected.

Ground-fault circuit interrupters are used primarily in bathrooms, kitchens, garages and outdoor areas, where electrical products may contact water. They monitor electricity from outlets that power appliances in these areas, such as hairdryers in the bathroom; if that hairdryer were dropped into a sink full of water during use, the ground-fault circuit interrupter would detect the interruption and



cut electrical power to the device in around one-thirtieth of one second.

A ground-fault circuit interrupter can either be built into an outlet to protect several outlets in series, or it can be incorporated as part of a ground-fault circuit interrupter circuit breaker. In addition, dual-function arc-fault circuit interrupter and ground-fault circuit interrupter circuit breakers are available.

### Resist tampering with tamper-resistant receptacles

Around 2,400 children annually are shocked or burned while sticking objects into electrical outlets. This can be prevented with tamper-resistant receptacles.

These receptacles look like regular outlets, but they have a spring-loaded

shutter system inside that prevents insertion of objects; except, of course, for intended plugs. The simultaneous pressure of a standard plug pushing into the receptacle opens the shutter for normal use.

Remember, only licensed and qualified electricians should install tamper-resistant receptacles, ground-fault circuit interrupters and arc-fault circuit interrupters. They can also perform evaluations of your home system.

### Know your fuses and circuit breakers

Some older homes still use fuses. When a fuse blows, dispose of it immediately. Replace it with a fuse that has a matching amperage rating; fuses with larger ratings pose fire hazards.

Electrical panels on most homes have circuit breaker switches instead of fuses. These switches generally flip into an “off” or neutral position when a circuit within the home is overloaded. If appliances in an entire room have stopped working, go to the electrical panel and identify the tripped circuit breaker. Push it to the “off” position if it is not there already and then reset it to the “on” position.

### Extension cords

Extension cords are intended for temporary use and not as permanent wiring solutions. They should not be run through ceilings or walls, as that creates a fire hazard. Damage to extension cords can occur when they are stapled or nailed to surfaces or when pinched under furniture, windows or doors.

Before using extension cords, check for exposed wiring and other damage. If a cord feels hot while in use, unplug and dispose of it. Check that cords are properly rated for outdoor or indoor use and certified by a nationally recognized testing laboratory such, as UL.

Extension cords also pose tripping hazards, so keep them out of doorways and foot traffic areas.

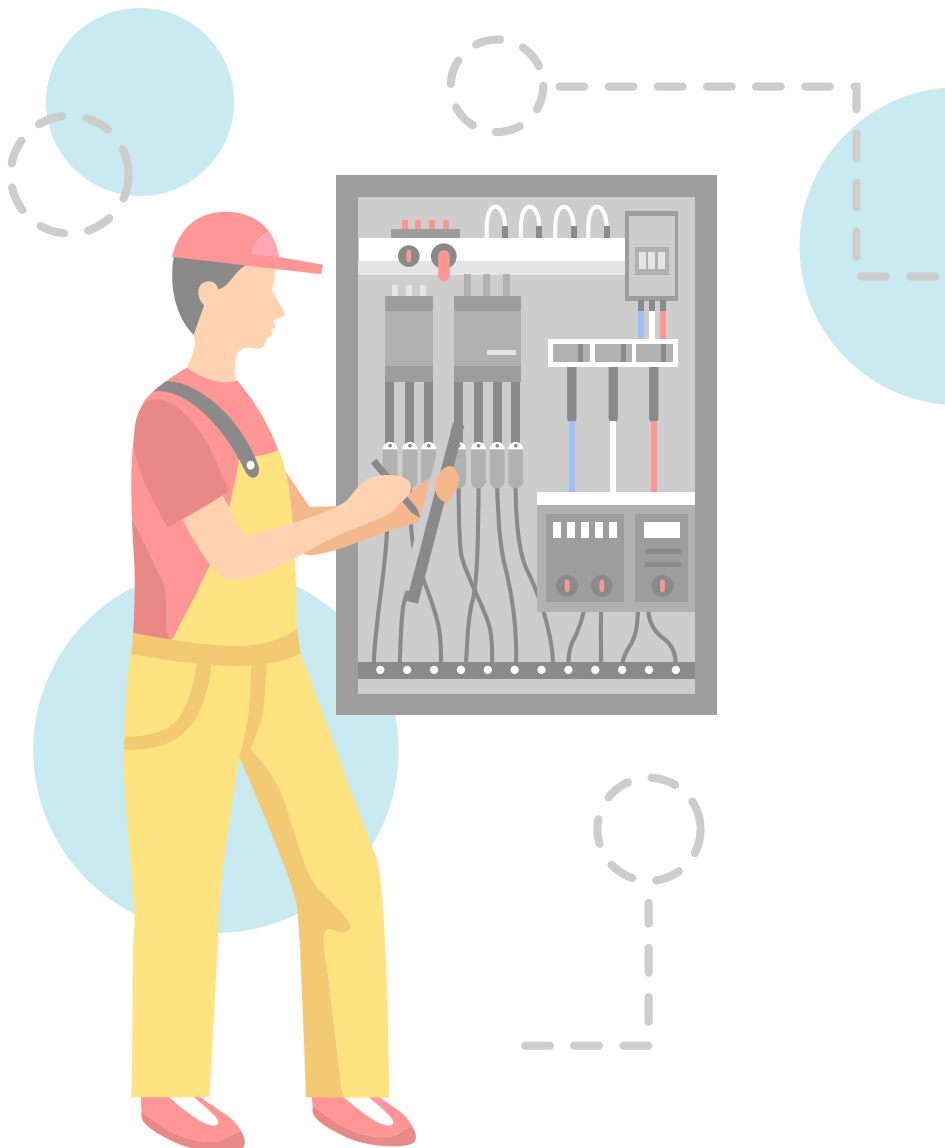
### Keep electrical safety in mind during yardwork!

Stay safe while you are doing the yardwork. Inspect trimmers, power tools and other devices for damaged or broken plugs and cords.

Avoid using electricity while working in wet conditions or on damp grass and keep all outdoor electronics and tools unplugged when not in use.

Protect your home from electrical hazards by raising awareness during May. After that, make every month Electrical Safety Month. □

*Note: Robbins is a technical writer who works under the Cherokee Nation Strategic Programs contract.*





### Secretary of Energy virtually visits WAPA

**O**n March 19, 16th Department of Energy Secretary Jennifer Granholm attended WAPA's senior leadership team virtual face-to-face meeting.

Granholm reaffirmed her commitment to working with WAPA in her new capacity.

"There is no other entity that has delivered as much zero-carbon energy as you have," she said. "How can we work with you on clean energy integration and ensure preference partners come first?"

She added that she was eager to partner with WAPA and learn from the organization.

"I am so eager to partner and to learn from you," said Granholm. "I hope you are willing to help us figure out how we can meet our energy goals and be mindful of your ratepayers' needs. We are 100% with you."

In a WAPA-wide email after the meeting, Interim Administrator and CEO **Tracey LeBeau** reflected on Granholm's words.

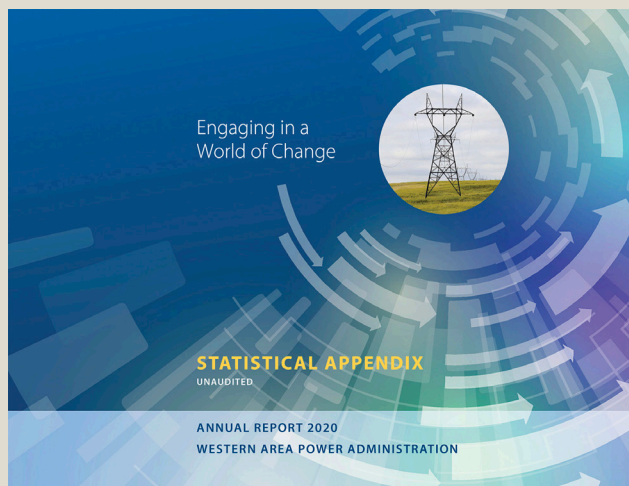
"What struck me is the 100% commitment to ensuring the needs of our preference partners and ratepayers are met as we work toward the Administration's goals for a clean energy future," said LeBeau. "She is conversant on our business, mission and views, and it was an incredibly productive dialogue."



# Brief Transmissions

## FY 2020 Statistical Appendix published

The fiscal year 2020 Statistical Appendix is now available. This document serves as an appendix to the annual report and contains around 160 pages of data about WAPA's transmission system, power sales, financial statements and hydroelectric power projects.



View the document at [wapa.gov](http://wapa.gov), The Source, Annual Reports



## Mandatory training due this month

Be sure to complete the mandatory training that is due for all WAPA federal and contract employees this month.

By May 24, employees must complete both Department of Energy Cybersecurity Awareness Training and North American Electric Reliability Corporation Critical Infrastructure Protection Security Awareness Training.

In addition, by May 29, employees must complete Insider Threat Awareness Training.



Complete these mandatory trainings by visiting Learning Nucleus at [learningnucleus.energy.gov](http://learningnucleus.energy.gov)



## New tool to request Teams team available June 1

On June 1, Information Technology will launch a new tool that allows employees to request a Microsoft Teams team. In addition to providing employees with a convenient and simple self-service mechanism, this process helps keep all requests within WAPA's established corporate governance guidelines.

The tool is called AvePoint Cloud Governance, which employees should know so that they may recognize the emails they might receive as a result of using it. IT will offer AvePoint training in the near future.

If you are interested in learning more about WAPA's corporate governance, check out the Microsoft Teams RASCI Matrix on the General channel of the Teams Forum, under the Microsoft Teams Training tab.

If you have additional questions, contact the WAPA IT Call Center at 720.962.7111 or [WITCC@wapa.gov](mailto:WITCC@wapa.gov)



## Answers to the National Science Bowl quiz on Page 8

High school	Middle school
1) Acceleration	1) 17
2) Retinal	2) Syzygy
3) Sulfuric acid	3) Zinc
4) Pancreas	4) 4
5) Six	5) 42
6) Principal	6) Quarks
7) Spiral	7) 11
8) Helium	8) Batesian mimicry
9) Marble	10) One
11) 16	11) -17
12) 7	12) 1,300
13) 1.5	13) Lactic acid
14) 96	14) Pyrolysis
15) 11	15) 10,000